International Journal of Mycobacteriology 2 (2013) 183–186

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Case Report

A 35-year-old immuno-competent male with open pulmonary tuberculosis associated with extra-ordinary extensive extra-pulmonary tuberculosis

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ARTICLE INFO

Article history:
Received 18 May 2013
Accepted 26 May 2013
Available online 27 June 2013

Keywords:
Pulmonary tuberculosis
Extra-pulmonary tuberculosis
Pott's disease
MRI-magnetic radio imaging
Sacroiliitis
DOTS-Directly Observed Treatment Short Course

ABSTRACT

Multifocal tuberculosis is characterized by the presence of large multifocal tuberculosis areas in the same or different adjacent or distant organs. Primary lesions are usually in the lungs in the majority of patients. Difficulty in confirming multifocal tuberculosis and consideration of other diseases may lead to a delay in diagnosis and thus in initiating treatment. Bone and joint involvement in tuberculosis is uncommon. While osteoarticular tuberculosis most commonly occurs in the vertebral column, less frequently affected sites are hip, knee, and sacroiliac joints. The following is a fascinating case of open pulmonary tuberculosis associated with extensive extra-pulmonary multifocal tuberculosis.

Introduction

The multifocal form of skeletal tuberculosis is exceptional, even in countries where the disease is endemic. Multifocal bony lesions may occur as a result of dissemination from a pulmonary or an osseous focus [1]. Osteoarticular tuberculosis is estimated to affect about 2% of patients with tuberculosis. Of patients afflicted with skeletal tuberculosis, 50% present with spinal lesions, 30% have hip or knee disease, and 20% are infected at other, less well-known sites, such as the pubis, wrist, shoulder, and sacroiliac joint. In particular, sacroiliac joint involvement has been reported in 7.7% of patients with skeletal tuberculosis [2]. The following case presentation involves an immunocompetent 35-year-old Saudi male prisoner diagnosed with open pulmonary tuberculosis associated with extensive extra-pulmonary multifocal tuberculosis.

A 35-year-old single Saudi male prisoner, brought in a wheelchair, presented with swelling of the right scalp area for 1 month, limping with his left leg, walking with a stooped posture, lower backache, swelling and pain in the left buttock, effortful micturition, fever, excessive sweating, cough and expectoration lasting 3 months. There was no family history of tuberculosis, and he denied high risk behavior.

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2212-5531/$ - see front matter
http://dx.doi.org/10.1016/j.ijmyco.2013.05.005

General physical examination

The patient looked ill, frail and pale, with a blood pressure reading of 110/70, heart rate of 90, 38 °C temperature, respiratory rate of 20, oxygen saturation of 95% at room temperature, and a check-in weight of 45 KG. He presented with a 2 × 3 cm swelling on the right scalp. His left buttock was grossly swollen Fig. 4 like a foot ball, he had tenderness at the left hip joint, sacroiliac joint bilaterally and right hip joint, he stood with much discomfort, and he had a stooped posture with semi-flexed left leg.

Systemic examination and images

Obvious right scalp swelling (Fig. 1) 2 × 3 cm in size with fluctuation. On chest auscultation, bilateral crackles were heard and abnormal chest X-rays with bilateral infiltrative lesions were present, including cavitation more on the left side CT scan chest (Fig. 2) showing pul. tuberculosis and paravertebral abscess, he also presented with a grossly swollen and tender left buttock (Fig. 3), with tenderness in the lumbosacral region, both sacroiliac and hip joints, and he had a swelling in the left inguinal region extending up to the left anterior superior iliac crest and down into the right upper thigh. Cranial nerves were intact CT brain (Fig. 4) reported right scalp and brain tuberculoma, plantar reflex showed and upward response bilaterally, spastic lower legs, power 4/5+ right lower limb, 3/5 left lower limb, and a neurogenic bladder. Both hip joints were reported involved well (Fig. 5). There were multiple cold abscess on left para iliac bone (Fig. 6). MRI reported pott's disease (thoracic and lumber spine) (Fig. 7). In addition MRI reported huge left buttock cold abscess (Fig. 8).

Laboratory results

Sputum D/S AFB 3+ and culture reported positive and sensitive to all first-line anti-TB drugs, WBC = 6.5, RBC = 3.2, Hb = 9.4, MCV = 78, MCH = 27, MCHC = 31, PLT = 520, ESR = 90, CRP = 78 AST = 30, ALT = 50, ALP = 101, S.BIL = 80 mmol.

Fig. 2 – CT scan-chest-pulmonary TB and paravertebral abscess (arrows).

Fig. 3 – Cold abscess grossly swollen left, left buttock (black arrow), abscess (arrow).

Fig. 1 – Right scalp swelling-cold abscess.

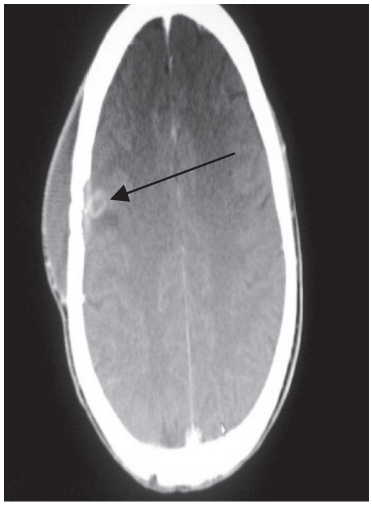

Fig. 4 – Brain tuberculoma and cold abscess on CT scan.

Fig. 5 – Bilateral hip joint involvement (arrows).

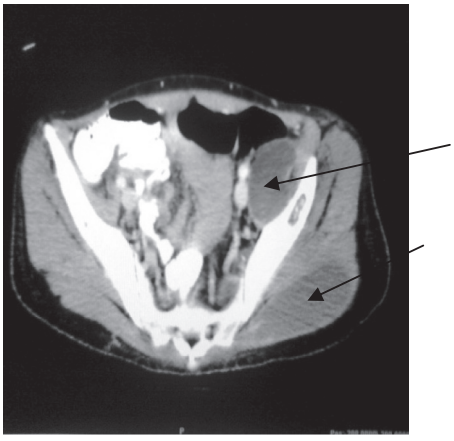

Fig. 6 – Left parailiac bone and cold abscesses (arrows).

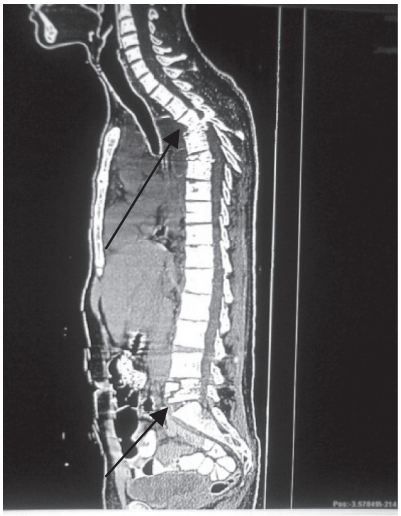

Fig. 7 – Pott's disease thoracic and lumbar spine (black arrows).

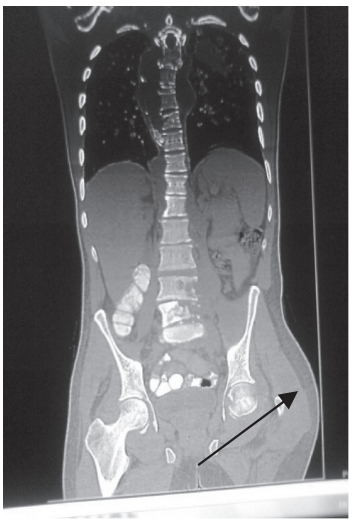

Fig. 8 – MPR showing grossly swollen left buttock due to huge cold abscess.

BU = 8.6, SCR = 75, HIV and hepatitis B&C serology reported negative, PPD 2 TU-RT23 = 18 mm, Vit D = 6.3 (low), S.cal = 1.87, T.S.Protein = 64, S.albumin = 31, FBS = 105, HbA1c = 5.2.

Management and hospital course

He was started on DOTS (Directly Observed Treatment Short Course) initial intensive phase with 4 drugs (2H, 2R, 2E, 2Z); his response to treatment was good and he became afebrile at 3 weeks. At the end of the first month, his sputum was reported 2+, his scalp swelling was incised and the cold abscess was also reported positive for AFB. He was sensitive to all first-line anti-TB drugs. At completion of 2 months of 4-drugs intensive phase, his sputum was reported 1+ on direct smear, thus his 4-drugs intensive phase was extended for another 4 weeks as per DOTS and SNTBCP (Saudi national tuberculosis program). Later on, he was continued on Isoniazid and rifampicin as part of the continuation phase.

He responded clinically and gained weight (48.5 kg), the chest lesions also started resolving with residual fibrocalcific changes. He was discharged after 4 months of hospitalization after being reported non-infectious and moved to the surgical floor. He was still having difficulty walking and was using a wheelchair; he was advised to wear a back corset for support. He was operated to remove the left buttock cold abscess and the left pectineal abscess which was extending down to the left upper thigh. An MRI showed a brain lesion in the right cortex, osteomyelitis of the skull bone with cold abscess, a cold abscess Fig. 8 on the right psoas muscle, left buttock, and involvement of both sacroiliac joints as well as hip joints Fig. 5.

At 8 months of treatment, the patient was ambulant with a healthy weight of 54kgs. He was still using a corset-support for his back and was undergoing physiotherapy. He was advised to take Vitamin D 2000 IU PO OD with calcium supplements, Tab.vit B6 40 mg PO OD, and 12 months of anti-TB treatment with regular follow-up.

Impression

Extensive multifocal tuberculosis involving lungs, brain, skull bone, thoracolumbar spine (Pott's disease), left buttock cold abscess, right psoas abscess and left pectineal abscess extending down to the left upper thigh, both sacroiliac and hip joints, Anemia of chronic disease, Vit-D deficiency.

Discussion

Tuberculosis continues to be a major health problem, and is among the leading causes of morbidity and mortality worldwide. Based on surveillance and survey data, the World Health Organisation (WHO) estimates in the latest report from the year 2009 that 13.7 million individuals were living with active tuberculosis in the year 2007 (206/100,000 population) and 9.27 million people (139 per 100,000 population) developed tuberculosis in the same year. Among those, 1.76 million were sero-negative and 455,000 were sero-positive for HIV infection [3].

While lungs are the most common site of tuberculosis, bone and joint involvement in tuberculosis is uncommon. Osteoarticular tuberculosis most commonly occurs in the vertebral column; less frequently affected sites are hip, knee and sacroiliac joints. The multifocal form of skeletal tuberculosis is exceptional, even in countries where the disease is endemic. Multifocal bony lesions may occur as a result of dissemination from a pulmonary or an osseous focus [1,4].

Sacroiliac joint tuberculosis is rare. In some cases, tuberculous lesions in the sacroiliac joints may spread to the inguinal and gluteal areas and produce abscess cavities as in this case. Its co-existence with vertebral tuberculosis is rare, with only a few such patients reported in recent literature [5,6]. Tuberculosis causes significant destruction on both sides of the sacroiliac joint. Osteoarticular tuberculosis is estimated to affect about 2% of patients with tuberculosis. Of patients afflicted with skeletal tuberculosis, 50% present with spinal lesions; brain tuberculomas are reported in 15% of cases, 30% have hip or knee disease, and 20% are infected at other less well-known sites, such as the pubis, wrist, shoulder and sacroiliac joint. In particular, sacroiliac joint involvement has been reported in 7.7% of patients with skeletal tuberculosis [7–9].

In general, response to 4-drug anti-TB treatment has been excellent in a large majority of these patients, but it has been slow in those with weak immune systems, diabetics, and HIV cases; they require prolonged treatment. Non-compliance is another preventable reason for poor response and outcomes, especially encountered in substance abusers with behavior issues [10].

Conclusion

Multifocal tuberculosis is observed more often in those with weak or compromised immune systems, but is also seen in immunocompetent individuals as in the subject case. A thorough physical examination is required even in those confirmed pulmonary cases of tuberculosis to suspect and find extra-pulmonary involvement, because it is important from the management and prognostic perspective. The main focus of investigation needs to be the lungs and spine, which require chest X-rays, CT scan of the chest, CT scan and MRI of the brain, spine and sacroiliac joints. Early diagnosis and prompt treatment has epidemiological and prognostic importance.

Response to anti-TB treatment is gauged by clinical well-being, radiological improvement and bacteriological negativity. Like many patients, the ultimate outcome under DOTS was good in this patient in all these aspects. It is better to delay elective surgical intervention until completion of at least the initial 2 months of 4-drug intensive phase of treatment, or more preferably until the patient has been rendered non-infectious and tests negative for AFB on direct smear sputum examination, except GATA-III spinal tuberculosis where early referral for surgery is a diagnostic and therapeutic priority. Duration of treatment with today's modern anti-TB drugs is usually 12–18 months in such a category of patients.

Conflict of interest

None declared.

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